

AMENDMENTS TO THE CLAIMS

1. (CURRENTLY AMENDED) A device comprising:

a one-piece outer portion configured for insertion into
an aperture through a wall of a plasma processing chamber, said
one-piece outer portion consisting of an electrically insulative
5 material and having dimensions effective to prevent or inhibit
plasma arcing to an electrically conductive surface of ~~an~~ said wall
of said plasma processing chamber exposed by said aperture through
~~a~~ said wall of ~~a~~ said plasma processing chamber, said one-piece
outer portion further comprising:

10 (i) a flange section configured to remain outside of
said aperture through said wall of said plasma processing chamber
wall;

(ii) a lower section having a shape approximate said
aperture to fit into said aperture; and

15 (iii) an inner opening communicating through the
electrically insulative material between a bottom and a top of the
outer portion.

2. (CURRENTLY AMENDED) A plasma processing chamber
having:

at least one aperture therein, the at least one aperture
having an exposed electrically conductive surface, and

the device of Claim 1, ~~located inside~~ inserted into the aperture.

3. (ORIGINAL) A method of making a plasma processing chamber, the chamber having at least one aperture therein, the at least one aperture having an exposed electrically conductive surface, the method comprising inserting the device of Claim 1 into 5 the aperture.

4. (PREVIOUSLY PRESENTED) A method of processing a workpiece, comprising the following steps:

(A) exposing the workpiece to a plasma in the plasma processing chamber of Claim 2; and
5 (B) transmitting a signal through the device out from the plasma processing chamber.

5. (CURRENTLY AMENDED) A plasma processing chamber having:

a wall;

5 at least one aperture through said wall, the at least one aperture having an exposed electrically conductive surface of said wall, and

a one-piece sleeve ~~inside~~ configured for insertion into the aperture, the one-piece sleeve consisting of an electrically insulative material and having:

10 (i) dimensions effective to prevent or inhibit plasma arcing to the exposed electrically conductive surface of the aperture wall;

(ii) a flange section configured to remain outside of said wall aperture;

15 (iii) a lower section having a shape approximate said aperture to fit into said aperture; and

(iv) an inner opening communicating through the electrically insulative material from a bottom to a top of the one-piece sleeve.

6. (CURRENTLY AMENDED) A method of making a plasma processing chamber having a wall, the method comprising:

(A) forming at least one aperture through said wall, the at least one aperture having an exposed electrically conductive 5 surface of said wall; and

(B) inserting a one-piece sleeve into the aperture, the one-piece sleeve consisting of an electrically insulative material and having:

(i) dimensions effective to prevent or inhibit plasma arcing to the exposed electrically conductive surface of the aperture wall;

(ii) a flange section configured to remain outside of said wall aperture;

(iii) a lower section having a shape approximate
15 said aperture to fit into said aperture; and

(iv) an inner opening communicating through the electrically insulative material between a bottom and a top of the one-piece sleeve.

7. (PREVIOUSLY PRESENTED) The method of Claim 6, further comprising, prior to inserting said one-piece sleeve, the step of forming said bottom of said one-piece sleeve to a plane having a non-orthogonal angle relative to said inner opening.

8. (CURRENTLY AMENDED) A method of processing a workpiece, comprising:

(A) exposing the workpiece to a plasma in a chamber, the chamber having (1) a wall, (2) an aperture through said wall, said aperture having an exposed electrically conductive surface through of said wall, and (3) a one-piece sleeve in inserted into the aperture, the one-piece sleeve consisting of an electrically insulative material and having:

(i) dimensions effective to prevent or inhibit
10 plasma arcing to the exposed electrically conductive surface of the
aperture wall,

(ii) a flange section configured to remain outside said wall aperture,

(iii) a lower section having a shape approximate a width of said aperture to fit into said aperture; and

(iv) an inner opening communicating through the electrically insulative material between a bottom and a top of the one-piece sleeve; and

(B) transmitting a signal through the one-piece sleeve
20 out from the chamber.

9. (ORIGINAL) A method of operating a plasma processing chamber, wherein the chamber has at least one aperture therein and the aperture has an exposed electrically conductive surface, the method comprising the steps of:

5 (A) initiating a plasma in the chamber, the aperture
having the device of Claim 1 therein, then .

(B) cleaning the chamber and the device.

10. (ORIGINAL) The method of Claim 9, wherein said plasma exists in said chamber for a predetermined period of time.

11. (CURRENTLY AMENDED) The method of Claim 9, further comprising, prior to step B, the steps of:

exposing a workpiece to the plasma, and
transmitting a spectroscopic signal through the device,
5 said spectroscopic signal indicating an etching endpoint.

12. (PREVIOUSLY PRESENTED) The device according to claim 1, wherein

said flange section has a width that is greater than a corresponding width of said aperture.

13. (PREVIOUSLY PRESENTED) The device according to claim 12, wherein said device applies a predetermined amount of pressure against an inner wall of said aperture.

14. (PREVIOUSLY PRESENTED) The device according to claim 12, wherein said lower section has a first length and said flange section has a second length.

15. (PREVIOUSLY PRESENTED) The device according to claim 14, wherein said first length is greater than a length of said aperture.

16. (PREVIOUSLY PRESENTED) The device according to claim 1, wherein an outer surface of said device forms an angle with reference to the bottom of said device.

17. (ORIGINAL) The device according to claim 16, wherein said angle is non-orthogonal.

18. (PREVIOUSLY PRESENTED) The device according to claim 1, wherein said inner opening transfers a spectroscopic endpoint detection signal.

19. (ORIGINAL) The plasma processing chamber of claim 2, wherein said at least one aperture comprises an endpoint detection channel.

20. (ORIGINAL) The device according to claim 1, wherein the electrically insulative material is selected from the group consisting of ceramics, multi-crystal ceramics, polyvinyl polymers, polytetrafluoroethylene, polyethylene, polypropylene, polyimides, 5 polycarbonates and single crystal insulative minerals.